

sitive and stable measurements of this important marker of prostatic cancer.

Now commercially available, the two main methods are a radioimmunoassay (RIA-PAP), which is measured in ng per ml, and a semiquantitative counterimmunoelectrophoresis (CIEP-PAP), measured by the density of precipitate formed on electrophoresis. CIEP-PAP is relatively simple, rapid and inexpensive but suffers greatly from a lack of quantitation in its present form. RIA-PAP, while technically more difficult, time-consuming and expensive, is reproducible and highly quantitative.

Early experience with these two methods has resulted in detection of abnormal levels of specific PAP in up to 50 percent of patients with prostatic cancer confined to the gland (when it is more easily cured and the possibility of surgical removal exists) when using RIA-PAP and 30 percent when using CIEP-PAP. Unfortunately, most cases of prostatic cancer are diagnosed in the advanced stages. At this point, immunologic detection of elevated levels of acid phosphatase reaches 80 percent to 90 percent.

Although rare instances of false-positives have been reported—for example, with carcinoma of the pancreas, these immunologic methods appear

specific enough to exclude the prostate as the cause of spurious acid phosphatase elevations when measured by the standard enzymatic methods.

Great enthusiasm accompanied the availability of the RIA-PAP test for the detection of undiagnosed carcinoma of the prostate and, to a limited extent, this has been justified. Its usefulness in massive random screening, however, has not been justified in theory or in practice. Early investigators have indicated that the advantage of using the RIA-PAP measurement lies in its ability (1) to measure the enzyme accurately despite conditions (such as time and temperature) to which the specimen is subjected before it is analyzed (stability) and (2) to establish a normal value for a particular patient, so that elevations in subsequent tests may indicate a pathological condition even though the test results may lie within the normal range (sensitivity).

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